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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,403	12/12/2003	John Pease	NFC1P014D1_D2	1176
28436	7590	05/21/2004	EXAMINER	
IP CREATORS P. O. BOX 2789 CUPERTINO, CA 95015			ADDISON, KAREN B	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/734,403

Applicant(s)

PEASE ET AL.

Examiner

Karen B Addison

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 28-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luecke (5543670) in view of Lindsey (5805448).

Luecke discloses an actuator in fig.4-42 comprising a first actuator (50), a second actuator (250) coupled frictionally with a corresponding two positioning members (60) and each of the piezo-actuators moving corresponding positioning members in either of the two directions of movement as determining by relative rates of expansion and contraction of the corresponding piezoelectric actuator. Luecke also in disclose in fig.5 driving a selected one of the first piezo-actuator and second actuators with the analog waveform converted in the converting act to move the corresponding positioning member frictionally coupled with the selected on of the first piezo- actuator and the second actuator in the selected on of the two direction. Wherein, a current sink (150) discharge the non-selected one of the first piezo- actuator and the second piezo – actuator and arrest movement thereof. However, Luecke do not disclose converting digitized pulses to analog waveform.

Lindsay discloses in fig.3 a control system and a method of controlling piezoelectric (104) actuators by using digital (78) to analog (68) converter for the purpose of using efficiently the gain required for optimal operation. Therefore, it would have been obvious

to one having ordinary skill in the art at the invention was made to modify the actuator of Luecke with the control method of Lindsay to obtain optimal operation.

3. Claim 30 is rejected under 35 U.S.C.103 (a) as being unpatentable over Luecke as applied to claims 28-29 above, and further in view of Takahata (6249093).

Neither Luecke nor Lindsay discloses using the average slope of digitized pulses.

Takahata discloses a control system using piezo -devices (6a-6ac) wherein the average slope of pulses are used (7,9,14,18-19,23,24,27) for the purpose of reducing noise in the mechanical vibrations system. Therefore, it would have been obvious to one having ordinary skill in the art at the invention was made to modify the actuator and control device of Luecke and Lindsay with the method of controlling piezo -devices averaging the slope for the purpose of reducing noise in the vibration system.

### ***Conclusion***

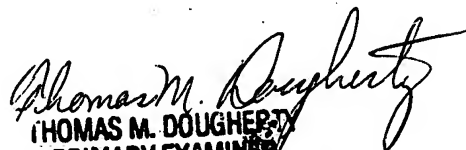
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen B Addison whose telephone number is 571-272-2017. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1317. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KBA  
5/12/04

  
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